



Calhoun: The NPS Institutional Archive
DSpace Repository

Theses and Dissertations

1. Thesis and Dissertation Collection, all items

1977-06

Impact of the Occupational Safety and Health Act on U.S. Naval construction forces

Buckner, Ernest Wesley; Koepp, Gary Eugene

<http://hdl.handle.net/10945/18146>

Downloaded from NPS Archive: Calhoun



Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

<http://www.nps.edu/library>

IMPACT OF THE
OCCUPATIONAL SAFETY AND HEALTH ACT
ON U. S. NAVAL CONSTRUCTION FORCES

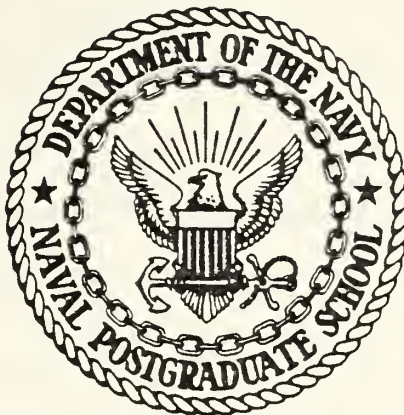
Ernest Wesley Buckner

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL

114

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

IMPACT OF THE
OCCUPATIONAL SAFETY AND HEALTH ACT
ON U. S. NAVAL CONSTRUCTION FORCES

by

Ernest Wesley Buckner

and

Gary Eugene Koepp

June 1977

Thesis Advisor:

CDR J. C. Tibbitts

Approved for public release; distribution unlimited.

T178639

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Impact of the Occupational Safety and Health Act on U. S. Naval Construction Forces		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis; June 1977
7. AUTHOR(s) Ernest Wesley Buckner and Gary Eugene Koepp		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Naval Postgraduate School Monterey, California 93940		12. REPORT DATE June 1977
		13. NUMBER OF PAGES 95
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Occupational Safety and Health Safety Occupational Safety and Health Act Health U. S. Naval Construction Forces Naval Construction Force Safety and Health		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Occupational Safety and Health Act (OSH Act) effective 29 December 1970 (P. L. 91-596) and its impact on the U. S. Naval Construction Force (NCF) is examined. The history of occupational safety legislation in the United States is summarized and discussed. The OSH Act is condensed and interpreted as to meaning. (cont.)		

DD FORM 1473

1 JAN 73

EDITION OF 1 NOV 68 IS OBSOLETE
S/N 0102-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. (cont.)

Existing safety programs within the Navy Department, the Naval Facilities Engineering Command, and the Naval Construction Force are discussed and compared with the intent of the OSH Act.

Specific conclusions on current attitudes towards the OSH Act and safety in the Navy are made, and recommendations for improvement are generated.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Approved for Public Release; Distribution Unlimited

Impact of the Occupational Safety and Health Act
on U.S. Naval Construction Forces

by

Ernest Wesley Buckner
Commander, Civil Engineer Corps, United States Navy
B.S., University of Washington, 1961

and

Gary Eugene Koepp
Lieutenant Commander, Civil Engineer Corps, United States Navy
B.S., University of Arizona, 1963

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the
Naval Postgraduate School
June 1977

Thesis
B8325
c.1

ABSTRACT

The Occupational Safety and Health Act (OSH Act) effective 29 December 1970 (P. L. 91-596) and its impact on the U. S. Naval Construction Force (NCF) is examined.

The history of the occupational safety legislation in the United States is summarized and discussed. The OSH Act is condensed and interpreted as to meaning.

Existing safety programs within the Navy Department, the Naval Facilities Engineering Command, and the Naval Construction Force are discussed and compared with the intent of the OSH Act.

Specific conclusions on current attitudes towards the OSH Act and safety in the Navy are made, and recommendations for improvement are generated.

TABLE OF CONTENTS

I.	DEVELOPMENT AND HISTORY OF OCCUPATIONAL SAFETY AND HEALTH -----	9
A.	U.S. NAVAL CONSTRUCTION FORCES AND THE OCCUPATIONAL SAFETY AND HEALTH ACT -----	9
B.	SAFETY AND HEALTH -----	9
	1. Definitions -----	9
	2. Areas of Principal Concern -----	10
C.	HISTORY AND BACKGROUND OF FEDERAL LEGISLATION -----	11
	1. Common Law -----	11
	2. Evolutionary Change -----	12
	3. A Need for Renewed Interest -----	14
	4. The Occupational Safety and Health Act Development -----	14
D.	HISTORY OF THE NAVY SAFETY PROGRAM -----	17
II.	THE OCCUPATIONAL SAFETY AND HEALTH ACT -----	21
A.	GENERAL -----	21
B.	THE OCCUPATIONAL SAFETY AND HEALTH ACT ---	21
	Section (1) - Summary -----	21
	Section (2) - Congressional Findings and Purpose -----	21
	Section (3) - Definitions -----	23
	Section (4) - Applicability -----	23
	Section (5) - Duties -----	24
	Section (6) - Occupational Safety and Health Standards -----	24
	Section (7) - Advisory Committees -----	26

Section (8) - Inspections, Investigations and Record Keeping -----	27
Section (9) - Citations -----	28
Section (10)- Procedure for Enforcement --	28
Section (11)- Judicial Review -----	29
Section (12)- The Occupational Safety and Health Review Commission -----	30
Section (13)- Imminent Danger -----	31
Section (14)- Representation in Civil Litigation -----	31
Section (15)- Trade Secrets -----	31
Section (16)- Variation, Tolerance, and Exemptions -----	31
Section (17)- Penalties -----	32
Section (18)- State Jurisdiction and State Plans -----	33
Section (19)- Federal Agency Safety Programs and Responsibilities	35
Section (20)- Research and Related Activities -----	36
Section (21)- Training and Employee Education -----	38
Section (22)- National Institute for Occu- pational Safety and Health -	38
Section (23)- Grants to States -----	40
Section (24)- Statistics -----	41
Section (25)- Audits -----	42
Section (26)- Annual Reports -----	42
Section (27)- National Commission on Workmen's Compensation -----	43
Section (28)- Economic Assistance to Small Business -----	44

	Section (29)- Additional Assistant Secretary of Labor -----	44
	Section (30)- Additional Positions -----	44
	Section (31)- Emergency Locator Beacons --	44
	Section (32)- Separability -----	45
	Section (33)- Effective Date -----	45
III.	CURRENT ATTITUDES -----	46
	A. EMPLOYER PERSPECTIVE -----	46
	B. EMPLOYEE PERSPECTIVE -----	48
	C. CONGRESSIONAL PERSPECTIVE -----	50
	D. THE COURT'S PERSPECTIVE -----	51
IV.	DEPARTMENT OF DEFENSE (DOD) POLICY -----	54
	A. APPLICABILITY AND SCOPE -----	54
	B. POLICY -----	54
	C. RESPONSIBILITY -----	55
V.	SECRETARY OF THE NAVY (SECNAV) POLICY -----	56
	A. OBJECTIVE -----	56
	B. APPLICABILITY AND SCOPE -----	56
	C. POLICY -----	57
	D. RESPONSIBILITY -----	57
VI.	THE DEPARTMENT OF THE NAVY SAFETY PROGRAM ----	59
	A. OBJECTIVES AND ORGANIZATION -----	59
	B. RESPONSIBILITY -----	59
	C. STANDARDS -----	61
	D. THE NAVY SHORE SAFETY PROGRAM -----	62
VII.	NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC) SAFETY PROGRAM -----	64
	A. POLICY -----	64
	B. RESPONSIBILITY -----	64

C.	STANDARDS -----	65
D.	U.S. NAVAL CONSTRUCTION FORCE (NCF) SAFETY PROGRAM -----	66
VIII.	APPLICABILITY OF OSH ACT TO THE NAVAL CONSTRUCTION FORCE -----	68
A.	STATUTORY DIRECTIVES -----	68
B.	CFR TITLE 29 REQUIREMENTS -----	68
1.	Part 1960 - Safety and Health Pro- visions for Federal Employees -----	69
2.	Part 1910 - Occupational Safety and Health Standards -----	70
3.	Part 1915 - Safety and Health Regu- lations for Ship Repairing -----	71
4.	Part 1916 - Safety and Health Regu- lations for Shipbuilding -----	71
5.	Part 1917 - Safety and Health Regu- lations for Shipbreaking -----	72
6.	Part 1918 - Safety and Health Regu- lations for Longshoring -----	72
7.	Part 1926 - Safety and Health Regu- lations for Construction -----	72
IX.	DISCUSSION -----	74
A.	IMPACT OF OSH ACT IN GENERAL -----	74
B.	IMPACT OF OSH ACT ON OSD -----	75
C.	IMPACT OF OSH ACT ON THE NAVY -----	76
D.	IMPACT OF OSH ACT ON THE NAVAL CON- STRUCTION FORCE -----	77
X.	CONCLUSIONS -----	85
A.	CURRENT IMPACT OF OSH ACT WITHIN THE NCF -	85
B.	EVALUATION OF CURRENT NCF SAFETY PROGRAMS-	86
	REFERENCES -----	89
	BIBLIOGRAPHY -----	93
	INITIAL DISTRIBUTION LIST -----	95

I. DEVELOPMENT AND HISTORY OF OCCUPATIONAL SAFETY AND HEALTH

A. U.S. NAVAL CONSTRUCTION FORCES AND THE OCCUPATIONAL SAFETY AND HEALTH ACT

The United States Naval Construction Forces (NCF) have long recognized the need for construction safety and have through the years developed an effective and site-tested occupational safety program. Implementation of the program has been mandatory for all NCF units and acceptance and compliance has been most favorable at all unit levels. With the advent of the Occupational Safety and Health Act (OSH Act), great concern has been generated because many opponents and proponents representing various phases of American industry have cited arguments for and against the need for a national occupational safety and health program. As a result, much confusion has evolved which has not been cleared up due to the magnitude of getting the program developed and implemented. To understand what the Act means and how it, coupled with the follow-on Executive Order (EO) 11807, impacts on the NCF safety program is the intent and purpose of this thesis.

B. SAFETY AND HEALTH

1. Definitions

In the textbook sense, "safety" is a matter of relative protection from exposure to conditions with the potential of causing injury to personnel, damage to equipment or structures, a loss of material or lessening of the ability to perform a prescribed function [Ref. 1].

"Health" is physical and mental well-being and freedom from disease [Ref. 2].

An adverse, unexpected, but not necessarily sudden event that takes place, is generally described as an "accident" [Ref. 3].

According to the OSH Act, the term "occupational safety and health standard" means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment [Ref. 4].

2. Areas of Principal Concern

Mr. John Lucas of the Leatherby Insurance Company has stated that between 85 and 98 percent of all accidents occur as a result of an act while only 2 to 15 percent of all accidents are caused by a condition.

Given that job conditions are generally physical in nature and consequently can often be seen and summarily identified for correction or actually corrected, the overwhelming effort should therefore be focused on practices and means, methods, operations, or processes to reduce the incidents of acts leading to accidents.

Reasons for the acts that result in accidents can be generally categorized as follows:

- a. lack of knowledge
- b. improper attitude
- c. physical, mental (of a permanent nature), or emotional (of a temporary nature) handicaps.

Identification of employee's attitudes or handicaps and the corrective measures to preclude accidents from happening are often within a supervisor's capabilities to accomplish or at least recommend, and include:

- a. instruction
- b. discipline, and
- c. proper placement of the employee.

Consequently, the employer through his supervisory staff assumes a large majority of responsibility for safety and health.

C. HISTORY AND BACKGROUND OF FEDERAL LEGISLATION

1. Common Law

The common law, derived principally from past usage, customs, opinions, and decisions, vis-a-vis statute law, prepared and enacted by the elected representatives of the people in their legislatures, is filled with and based on opinions of the interrelationships between three types of legal persons: master (employer), stranger (a third party, i.e., guest, business visitor, or a member of the general public), and servant (employee).

Historically, under common law an employer was obligated to provide his employee with:

- a. A safe place to work.
- b. Safe tools with which to perform the work.
- c. Knowledge of any hazards that were not immediately apparent but might be encountered during performance of the work.

- d. Competent fellow employees and supervisors.
 - e. Rules by which all could perform safely, and means to ensure that the rules were observed.
- [Ref. 5].

The only means by which an employee could obtain indemnity for a job-related accident was by proving in court that his employer's negligence had been the sole cause of injury. The burden of proof lay with the claimant and was generally difficult, time-consuming and costly to prove. The employer on the other hand could escape responsibility by proving that there had been injured employee or fellow employee contributory negligence or that there had been an assumption of risk by the injured employee (i.e., he had been aware of the hazards of his work and had accepted them) [Ref. 6].

2. Evolutionary Change

In 1867, after a public cry for legislative action, the state of Massachusetts passed a law that instituted factory safety inspections. In 1877, a Massachusetts law requiring guarding of dangerous moving machinery was passed. In 1885, Alabama, and in 1887, Massachusetts, passed employer liability laws. Other states followed suit. However, these laws did nothing to alter the situation by which an employer could be considered not liable for damages because of contributory negligence of the employee's. On these grounds, the employers consistently won their legal cases and this met with renewed public demands for corrective legislation.

During this time, more progressive companies found that it was advantageous to initiate programs to safeguard their personnel and to improve employer-employee relations with compensation that went beyond legal requirements. These beyond measures increased efficiency and outputs, reduced costs, and resulted in higher profits. On the other hand, employer liability laws only increased the employer's insurance liabilities rates unmercifully. Now both the employer and the employee began demanding workmen's compensation laws that would provide fixed but limited damages to be paid to injured employees. With proper laws, there would be reductions in litigation and legal fees, not to mention reduced insurance premiums.

In 1908, the U. S. Congress, as prodded by President Theodore Roosevelt, passed the first workmen's compensation law that covered certain limited civil service employees in what were considered extra-hazardous occupations. States soon followed suit. Little by little, the coverages of these laws, through broad interpretations, were made to cover situations unrealized at the early inception of these laws, e.g., medical and rehabilitation coverage [Ref. 7].

Simultaneously, states and other local jurisdictions formulated and codified regulations and standards for conduct in hazardous operations. Industry and technical associations developed standards and recommended their adoption.

Progressive organizations accepted these while other organizations were forced into their adoption through threat of increased insurance premiums. In 1936, the Walsh-Healy

Act saw the Federal government establish certain safety criteria for workers on Federal contracts. The Longshoremen's and Harbor Workers' Act amendment of 1958 required employers to maintain safe conditions. Further, the Mine Safety Act provisions enacted in 1941, 1947, and 1952, permitted safety inspections of mines [Ref. 8].

3. A Need for Renewed Interest

Undoubtedly these regulations helped reduce the incident of accidents. However, in the 1960's after years of decline, the accident rate leveled off and actually began to rise. Additionally, increasing interstate commerce identified a need for uniform standards throughout the nation.

4. The Occupational Safety and Health Act Development

In 1968, President Johnson proposed an occupational health and safety bill that would have given the Secretary of Labor power to set and enforce Federal standards, including a provision to allow the Secretary to close a plant if an "imminent danger" threatened the lives of workers. This proposal met strong resistance from business groups, Republicans, and conservative Democrats and was consequently modified to limit the Secretary's authority to promulgate standards established by recognized safety organizations. Lobby groups still opposed the measure and it died in the House Rules Committee [Ref. 9].

On August 6, 1969, President Richard M. Nixon addressed Congress on the need for general occupational

safety and health legislation [Ref. 10]. He pointed out the recent technological advances made by American industries and the associated side effects on national safety and health. In his message, the President suggested that concern for safety and health had lagged behind the technological advances. Although many businesses and industries had made commendable progress in protecting the safety and health of their workers, the voluntary efforts had not been sufficiently widespread. In fact, most of the effort had been made by the state and local governments. Unfortunately, the effectiveness of these state and local laws varied widely and had little standardization.

In his address, the President proposed a plan that would standardize safety and health rules in the United States. He suggested that standards could be set, " . . . through a voluntary consensus of industry, labor, and other experts," [Ref. 11].

The Occupational Safety and Health Act, as forwarded to Congress by the Secretary of Labor, was the attempt at correcting the discrepancies that had existed due to non-standardization. On December 29, 1970, Congress passed the OSH Act as Public Law 91-596 to be effective from April 28, 1971 [Ref. 12].

Under the act, various commissions and groups were established to formulate and enforce the standards established by law. However, the OSH Act excluded the Federal sector by defining an employer as, " . . . a person engaged

in a business affecting commerce . . . but does not include the United States or any State or political subdivision of a State," [Ref. 13]. Section 19 of OSH Act gave the Federal sector the responsibility " . . . to establish and maintain an effective and comprehensive occupational safety and health program which is consistent with the standards promulgated under section 6 . . ." [Ref. 14] of the Act.

This seeming inconsistency as applicable to the Federal sector was clarified, in part, by the issuance of Executive Order (EO) 11612 of July 26, 1971, barely three months after the effective date of the Act. EO 11612 acknowledged the role of the Federal government, as the nation's largest employer, to set an example. Consequently, the head of each Federal agency was tasked with providing safety and health programs consistent with standards established by the Act. The Secretary of Labor was directed to develop Federal sector standards and procedures.

In light of experience, Executive Order 11807 was issued on September 28, 1974, to further amplify EO 11612. Detailed responsibilities and guidelines for the heads of Federal agencies and the Secretary of Labor were set forth. It became mandatory that the Secretary of Labor prescribe requirements for the other agencies with respect to record-keeping and reporting. Additionally, under EO 11807 the Secretary of Labor is required to perform various services for the agencies, and the agencies are encouraged to seek assistance of the Secretary of Labor as needed to comply

with guidelines and to otherwise operate effective safety and health programs for their employees. Heads of agencies are required to consult with representatives of employees and to provide for employee participation in the operation of agency safety and health programs [Ref. 15].

D. HISTORY OF THE NAVY SAFETY PROGRAM [Ref. 16]

Accidents and environmental hazards have been the subject of various U. S. Navy programs to reduce the number of personnel injuries and property losses, dating back to 1917. At that time, general safety engineers were assigned to each major naval shipyard. Around 1922, safety programs were extended to civilian employees at all naval activities. By 1929, enlisted personnel on shore duty were also covered by these programs.

In 1941, the Industrial Health Office was established in each naval district and industrial medical officers and hygienists were authorized to inspect facilities and council activities within their districts. BUMED initiated a system for collecting and tabulating civilian injury data and a government motor vehicle safety program was established.

From 1941 through 1945 other local programs were established in response to urgent needs. Instruction manuals, engineering reports, and similar channels were used to disseminate information developed by cognizant commands' safety engineering specialists, but no program was developed for ship safety as an entity. This prompted the Chief of Naval Operations (CNO) in 1948 to establish a Safety

Precautions Board to consolidate and incorporate all safety routines. The resulting "U. S. Navy Safety Precautions Manual (OPNAV 34P1)" was issued in 1953.

In the meantime, based on aircraft accident statistics, it became clear that an intensified aircraft accident prevention program was required. In December 1951, SECNAV established the Naval Aviation Safety Activity. The title was changed to Naval Aviation Safety Center in 1955 and primary duty billets for Aviation Safety Officers were established on major air staffs and in each aircraft squadron.

In 1956 the CNO, the Commandant of the Marine Corps (CMC), and the chiefs of bureaus and offices were given responsibility for implementation of the safety program, and full responsibility for their respective technical areas.

SECNAV, in 1960, established an accident reporting system applicable to military personnel ashore and afloat, on and off duty except for aircraft mishaps.

On 10 April 1963, the Navy was shaken by the loss of the USS THRESHER (SSN 593), with 129 men aboard. A Court of Inquiry convened to examine the circumstances leading to and surrounding the loss recommended that a submarine safety program and organization be established. In February 1964 the Submarine Safety Center was established. During April 1964, the "U. S. Navy Safety Precautions Manual" was cancelled in the Fleet and rewritten as "Department of the Navy Safety Precautions for Shore Activities."

The years 1966 and 1967 saw a series of fires, collisions, and other major accidents involving surface ships that resulted in the loss of over 200 lives in addition to the expenditure of more than 100 million dollars to repair the damages. SECNAV called upon the CNO to undertake a comprehensive study of the Department of the Navy Safety Program. As a result of this study, SECNAV established the present Naval Safety Center (NAVSAFECEN) by consolidating the original Aviation and Submarine Safety Center staffs and adding the Naval Shore and Surface Activities into the new organization as Safety Directorates.

In recognition of the great importance of centralized management of all safety efforts, on 2 June 1973, COMNAVSAFECEN was designated CNO Safety Coordinator (OP-09F), reporting directly to the Vice Chief of Naval Operations. As a result of the implementing instruction, the Naval Safety Center's mission was made more specific and all encompassing to include the following:

- a. collect accident, near-accident, unsatisfactory material and hazard reports
- b. store this data so that it can be retrieved to support accident prevention efforts in education, training, system safety, and hazard awareness
- c. periodically disseminate accidental loss statistics
- d. maintain direct liaison with all levels of command within the Navy and other government and private agencies, and

- e. initiate and conduct nonpunitive accident investigations into accidents, near-accidents, and hazardous conditions to determine why they occurred or existed in order to recommend corrections to loss control policy necessary to maintain combat readiness and reduce loss of resources.

Investigations, surveys, and field visits brought to light continuing need for further emphasis on accident prevention education. The Project for Accident Prevention Education was established in March 1974, and was tasked in 1975 with reviewing safety-related education materials developed by the Chief of Naval Education and Training.

In 1976, as the Chief of Naval Operations identified a need for even greater involvement in implementation of OSH Act with the Navy, OP-04 was designated as the program sponsor for the Navy Occupational Safety and Health Program [Ref. 17].

II. THE OCCUPATIONAL SAFETY AND HEALTH ACT

A. GENERAL

In order to grasp more quickly the meaning and content of the Occupational Safety and Health Act as written in the law, the text is paraphrased within this chapter for easier reading. This paraphrased version of the act will provide the background information needed for subsequent analysis and discussion within this thesis, but should not be used in determining the specific requirements of the act. For actual wording of the Act, the reader is referred to Public Law 91-596.

B. THE OCCUPATIONAL SAFETY AND HEALTH ACT

Section (1) - Summary

The Congress enacted the "Occupational Safety and Health Act of 1970" to assure safe and healthful working conditions for men and women. The act authorizes the enforcement of standards developed under the act, provides for assisting and encouraging states in their efforts to assure safe and healthful working conditions and provides for research, information education and training in the field of occupational safety and health.

Section (2) - Congressional Findings and Purpose

The Congress finds that personal injuries and illnesses arising out of work situations impose a substantial burden and hindrance to interstate commerce in terms of lost

production, wage loss, medical expenses and disability payments. Through its power to regulate commerce among the states and with foreign nations, the Congress declares that its purpose and policy is to assure every working man and woman safe and healthful working conditions and to preserve our human resources. The Congress plans to accomplish this goal through the following action:

1. Encourage employees and employers to reduce the number of hazards at their places of employment;
2. Stimulate employers and employees to institute new programs to providing safe and healthful working conditions and to perfect existing programs;
3. Provide separate but dependent responsibilities and rights with respect to achieving safe and healthful working conditions for both employers and employees;
4. Authorize mandatory occupational safety and health standards as set by the Secretary of Labor;
5. Creation of an Occupational Safety Health Review Commission for carrying out adjudicatory functions;
6. Building upon advances already made through employer and employee initiative;
7. Provide for research in the field of occupational health and safety;
8. Develop innovative methods, techniques, and approaches for dealing with occupational safety and health problems;
9. Explore ways to discover latent diseases having causal connections with work environments;

10. Provide medical criteria to assure no employee will suffer diminished health as a result of their work experience;
11. Provide training programs for occupational safety and health personnel;
12. Develop and promulgate occupational safety and health standards;
13. Provide an effective enforcement program;
14. Encourage states to assume the fullest responsibility for and the improvement of the administrative and enforcement of their occupational safety and health laws;
15. Provide appropriate reporting procedures which will help achieve the objectives of the occupational safety and health act;
16. Encourage joint labor-management efforts to reduce injuries and disease arising out of employment.

Section (3) - Definitions

Definitions have been included within the paraphrased text where first occurring.

Section (4) - Applicability

The act applies to employment performed in work places within the United States including the outer continental shelf, territories and possessions except for Federal and state agency employees subject to previously promulgated Federal safety and health standards or regulations.

The Secretary of Labor within three years shall report to Congress with recommendations for legislation to avoid

unnecessary duplication and to achieve coordination between this act and other Federal laws. Nothing in the OSH Act is to be construed to effect the common law or statutory rights, duties or liabilities of employers or employees under any law with respect to injury, disease or death arising out of employment.

Section (5) - Duties

Employers shall furnish each employee employment and a place of employment free from recognized hazards that are causing or likely to cause death or physical harm and shall comply with the standards promulgated by the Occupational Safety and Health Act.

Employees shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to OSH Act which are applicable to his own actions and conduct.

The terms "employee" means an employee of an employer who is employed in a business of his employer which affects commerce. The term "employer" means a person engaged in a business affecting commerce who has employees but does not include the United States or any state or political subdivision thereof.

Section (6) - Occupational Safety and Health Standards

Within two years of the date of OSH Act, the Secretary of Labor shall promulgate as an occupational safety and health standard any national consensus standard and any established Federal standard unless such would not result in improved safety or health for employees. The term

"national consensus standard" means any occupational safety and health standard which has been adopted and promulgated by a nationally recognized standards-producing organization and the term "established Federal standard" means any operative occupational safety and health standard established by any agency of the United States and presently in effect. If these standards conflict, the standard giving the employee greatest protection shall be promulgated.

Proposed changes to the standard submitted to the Secretary of Labor are reviewed by the Advisory Committee and if promulgation of the change is recommended, the proposed changes are published in the Federal Register affording a 30-day opportunity for interested parties to submit data and comments. Objections to the proposed standard must be filed within the 30-day comment period, stating the objections. The time and place of public hearings are published in the Federal Register along with the stated objections. Within sixty days after the close of the period for submission of written comments or after public hearings, the Secretary of Labor shall issue a rule promulgating, modifying or revoking an occupational safety or health standard or make a determination that a rule should not be issued.

In promulgating standards dealing with toxic materials or harmful physical agents, the Secretary of Labor shall set the standard which most adequately assures that no employee will suffer material impairment of health or functional capacity even if the employee has regular exposure

to the hazard for the period of his working life. Development of standards shall be based upon research, demonstration, experiments and other appropriate information considering the latest available scientific data and experience.

The Secretary of Labor may issue a temporary order granting an employer a variance from a newly promulgated standard when certain circumstances prevent implementation of the standard by the effective date.

The Secretary of Labor may provide an emergency temporary standard to take immediate effect whenever he determines that employees are exposed to grave danger and the standard is necessary to protect employees from this danger. Whenever the Secretary of Labor promulgates a rule substantially different from an existing national consensus standard, he shall publish a statement in the Federal Register giving the reasons why the rule as adopted will better effectuate the purposes of the Occupational Health and Safety Act than the existing National Consensus Standard.

Section (7) - Advisory Committees

A National Advisory Committee on Occupational Safety and Health is established consisting of twelve members appointed by the Secretary of Labor (four of whom are to be designated by the Secretary of Health, Education and Welfare) and composed of representatives of management, labor, occupational safety, and occupational health professions, and of the public. The National Advisory Committee shall advise, consult with and make recommendations to the Secretary of Labor on matters relating to the administration of the act.

Advisory committees may be appointed by the Secretary of Labor to assist in the standard setting functions. Members will include those qualified to present the viewpoint of the employers and the workers involved in equal number and may be representatives from federal, private or professional sectors or employed experts and consultants. The advisory committees meetings are open to the public.

Section (8) - Inspections, Investigations and Record Keeping

The Secretary of Labor or his agent in charge is authorized to enter at reasonable times and inspect or investigate any work place where work is being performed by an employee. In the course of these inspections or investigations the attendance and testimony of witnesses and the production of evidence under oath may be required.

Each employer shall keep records and make periodic reports as prescribed by the Secretary of Labor regarding activities/injuries/deaths relating to the Occupational Safety and Health Act. Accurate records (available to the employee) will be maintained of employees' exposure to potentially toxic materials or harmful physical agents, and prompt notification will be made to employees when concentrations or levels which exceed those prescribed by an applicable standard are discovered. Employees will also be notified of the corrective action being taken.

Any employee or representative who believes that a violation of a standard that threatens harm or imminent danger exists may request an inspection by the Secretary

of Labor or his authorized representative of such violation or danger.

The Secretary of Labor and the Secretary of Health, Education, and Welfare are authorized to compile, analyze, and publish all reports or information obtained by inspections or investigations.

The Secretary of Labor and the Secretary of Health, Education and Welfare shall each prescribe rules and regulations deemed necessary to carry out their responsibilities dealing with the inspection of an employer's establishment.

Section (9) - Citations

If upon inspection or investigation, the Secretary of Labor or his designated representative believes that an employer has violated a requirement of any standard, rule, or order of the Occupational Safety and Health Act he shall with reasonable promptness issue a citation to the employer. No citation may be issued after six months following the occurrence of any violation.

Section (10) - Procedure for Enforcement

If the Secretary of Labor issues a citation after an inspection or investigation, he shall notify the employer within a reasonable time of any proposed penalty. The employer has fifteen working days within which to notify the Secretary of Labor if he wishes to contest the citation or proposed penalty. If no notice to contest the citation and penalty is received, the citation and assessment shall be deemed a final order of the Occupational Safety and Health

Review Commission and not subject to review by any court or agency.

If the Secretary of Labor has reason to believe that an employer has failed to correct a violation for which a citation has been issued within the period permitted for its correction, the Secretary of Labor shall notify the employer of such failure and of the penalty proposed to be assessed by reason of such failure. The employer has fifteen working days within which to notify the Secretary of Labor if he wishes to contest the proposed penalty. If no notice to contest the citation is received, the assessment shall be deemed a final order of the Occupational Safety and Health Review Commission and not subject to review by any court or agency.

If an employer advises the Secretary of Labor that he is going to contest the citation and/or penalty because he feels that the period of time for correction is unreasonable, the Secretary will notify the Occupational Safety and Health Review Commission and the commission shall afford an opportunity for a hearing. The commission will thereafter issue an order based on finding of fact, affirming, modifying, or vacating the citation and penalty, and/or directing the appropriate relief. The order will become final thirty days after its issuance.

Section (11) - Judicial Review

Any person adversely affected or aggrieved by the order may obtain a review of the order in the appropriate United States court of appeals. The Secretary of Labor may also

obtain review or enforcement of any final order of the commission for such relief in the appropriate United States court of appeals.

No person shall discharge or discriminate against any employee because the employee filed a complaint or instituted or caused to be instituted any proceeding under or related to the Occupational Safety and Health Act. If an employee believes that he has been discharged or discriminated against, he may file a complaint with the Secretary of Labor. The Secretary of Labor shall cause an investigation to be made as he deems appropriate. If the investigation reveals that discharge or discrimination has occurred he shall bring an action in any appropriate United States district court against such person.

Section (12) - The Occupational Safety and Health Review Commission

The Occupational Safety and Health Review Commission is established and shall be composed of three members appointed by the President with the advice and consent of the Senate. The Chairman of the commission is responsible for administrative operations and appointment of hearing examiners and other employees deemed necessary. The commission may order testimony be taken by deposition or compel persons to appear or to produce information in any proceedings before the commission. Hearing examiners shall hear, and make a determination upon any proceeding instituted before the commission assigned to the hearing officer by the chairman of the commission. The applicable jurisdiction and powers

of the commission for any proceeding before the commission are the same as the provisions of section 11 of the National Labor Relations Act (29 U.S.C. 161).

Section (13) - Imminent Danger

The United States district court shall have jurisdiction upon petition of the Secretary of Labor, to restrain any conditions or practices in any place of employment wherein a danger exists which could reasonably be expected to cause death or serious physical harm before the danger can be eliminated through enforcement procedures provided by the Occupational Safety and Health Act.

Section (14) - Representation in Civil Litigation

The Solicitor of Labor may appear for and represent the Secretary of Labor in any civil litigation brought under the act and such litigation shall be subject to the direction and control of the Attorney General.

Section (15) - Trade Secrets

All information reported to or obtained by the Secretary of Labor or his representative in connection with any inspection which contains or might reveal a trade secret shall consider that portion confidential.

Section (16) - Variation, Tolerance, and Exemptions

The Secretary of Labor, after notice and opportunity for a hearing, may provide such reasonable limitations and may make such rules and regulations allowing reasonable variations, tolerances, and exemptions to and from any or all provisions of the Occupational Safety and Health Act

as he may find necessary and proper to avoid serious impairment of the national defense.

Section (17) - Penalties

Any employer who willfully or repeatedly violates the requirements, any standards, rule, order or regulation promulgated pursuant to the Occupational Safety and Health Act may be assessed a civil penalty of not more than \$10,000 for each violation.

Any employer who has received a citation for a serious or non-serious violation of the requirements shall be assessed a penalty of up to \$1,000 for each violation. A serious violation is deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a condition which exists which was adopted or in use at the place of employment unless the employer did not and could not know of the presence of the violation.

Any employer who fails to correct within the corrective period permitted a violation for which a citation has been issued may be assessed a penalty of not more than \$1,000 for each day the violation continues. Any employer who willfully violates any requirement and that violation causes death to an employee, shall upon conviction be punished by a fine of not more than \$10,000 or by imprisonment for not more than six months or both. If, however, the conviction is for a second violation committed by a person, the penalty shall be a fine of not more than \$20,000 or by imprisonment for not more than one year or both.

Any person who gives advance notice of any inspection to be conducted without authority from the Secretary of Labor or his designees shall upon conviction be punished by a fine of not more than \$1,000 or by imprisonment for not more than six months or by both.

Whoever knowingly makes a false statement, representation, or certification in any application, record, report, plan or document shall upon conviction be punished by a fine of not more than \$10,000 or by imprisonment for not more than six months or by both.

Whoever kills a person engaged in or on account of the performance of investigative, inspection, or law enforcement functions shall upon conviction be punished by imprisonment for any term of years or for life.

The commission shall have authority to assess all penalties giving due consideration to the appropriateness of the penalty with respect to the size of the business, the gravity of the violation, the good faith of the employer and the history of previous violations.

Section (18) - State Jurisdiction and State Plans

Any state which desires to assume responsibility for development and enforcement of occupational safety and health standards relating to any occupational safety and health issue shall submit a state plan for the development of standards and their enforcement.

The Secretary of Labor shall approve state plans if in his judgment they provide for the following:

1. Designate a state agency responsible for administering the plan;
2. Provide for the development and enforcement of safety and health standards which will be at least as effective in providing safe and healthful employment and places of employment as the Occupational Safety and Health Act;
3. Provide for a right of entry and inspection of all work places which is at least as effective as that provided by the Occupational Safety and Health Act;
4. Contain satisfactory assurances that state agencies will have legal authority and qualified personnel necessary for the enforcement of standards;
5. Give satisfactory assurances that the state will devote adequate funds to the administration and enforcement of standards;
6. Contain satisfactory assurances that the state will establish and maintain an effective and comprehensive occupational safety and health program applicable to all employees of public agencies of the state that is as effective as the standards contained in the approved plan;
7. Require employers to make reports to the Secretary of Labor as if the state plan were not in effect and other reports the Secretary of Labor may desire;
8. If the Secretary of Labor rejects a proposed state plan the state must be afforded due notice and a hearing before so doing.

For approved state plans, the Secretary of Labor may exercise authority until he determines, based on actual operations, that the criteria for the state plan are being applied. Thereafter, based on state submitted reports and inspections, the Secretary of Labor will make a continuing evaluation of the manner in which states are carrying out their plans. Withdrawal of approval of the state plan may be made whenever there is substantial failure to comply with any provisions of the state plan.

Section (19) - Federal Agency Safety Programs and Responsibilities

The heads of Federal agencies shall establish and maintain an effective and comprehensive occupational safety and health program consistent with the standards promulgated under this act.

The head of each agency after consultation with representatives of the employees shall:

1. Provide safe and healthful places and conditions of employment consistent with this act;
2. Acquire, maintain, and require the use of safety equipment, personal protective equipment and devices reasonably necessary to protect employees;
3. Keep adequate records of all occupational accidents and illnesses for proper evaluation and necessary corrective action, and consult with the Secretary of Labor with regard to the adequacy as to form and content of these records;

4. Make an annual report to the Secretary of Labor with respect to occupational accidents and injuries and the agency's program.

The Secretary of Labor shall make a summary or digest of reports submitted by each agency head together with his evaluations and recommendations derived from such reports. The President will subsequently submit to Congress a report of the activities of the federal agencies. The Secretary of Labor shall have access to agency records and reports except those that are required by Executive Order to be kept secret in the interest of national defense or foreign policy.

Section (20) - Research and Related Activities

The Secretary of Health, Education and Welfare, after consultation with the Secretary of Labor and appropriate federal departments or agencies, shall conduct research, experiments, and demonstrations relating to occupational safety and health.

Such research will include studies of psychological factors involved and relating to innovative methods, techniques and approaches dealing with occupational safety and health programs. Specific plans for research shall be developed with consultation of the Secretary of Labor. Such criteria applicable to this act shall be published at least annually.

Research will also explore new problems created by advancing technology and the motivational and behavioral factors relating to the field of occupational safety and health.

The Secretary of Health, Education, and Welfare may prescribe regulations requiring employers to measure, record, and make reports on the exposure of employees to substances or physical agents he believes may endanger the health of employees. The Secretary of Health, Education and Welfare is also authorized to establish programs of medical examinations and tests necessary for determining the incidence of occupational illnesses and the susceptibility of employees to such illnesses. Upon the request of any employer required to measure and record exposures of employees, the employer will be furnished full financial or other assistance to defray the measuring and recording expenses incurred.

The Secretary of Health, Education, and Welfare shall publish results of studies as needed but at least annually. The Secretary of Health, Education and Welfare is authorized to make inspections and question employers and employees in order to carry out his functions and responsibilities.

The Secretary of Labor is authorized to enter into contracts, agreements, or other arrangements with public agencies or private organizations for the purpose of conducting studies relating to his responsibilities under this act. Duplication of efforts with the Secretary of Health, Education, and Welfare will be avoided.

The functions of the Secretary of Health, Education, and Welfare shall, to the extent feasible, be delegated to the Director of the National Institute for Occupational Safety and Health.

Section (21) - Training and Employee Education

The Secretary of Health, Education, and Welfare, after consultation with the Secretary of Labor, shall conduct directly or by grants or contracts, education programs to:

1. Provide an adequate supply of qualified personnel to carry out the purposes of this act;
2. Provide informational programs on the importance of and proper use of adequate safety and health equipment;
3. Provide short-term training of personnel engaged in work related to his responsibilities under this act;
4. Establish and supervise programs for the education and training of employers and employees in the recognition, avoidance, and prevention of unsafe or unhealthful working conditions;
5. Consult and advise employers, employees and organizations representing employers and employees as to effective means of preventing occupational injuries and illnesses.

Section (22) - National Institute for Occupational Safety and Health

The National Institute for Occupational Safety and Health is established to carry out the policy and purpose of this act and to perform the functions of this act which are the responsibility of the Secretary of Health, Education, and Welfare.

The Institute is authorized to:

1. Develop and establish recommended occupational safety and health standards;

2. Perform all functions of the Secretary of Health, Education and Welfare related to research and related activities and training and employee education;
3. Conduct such research and experimental programs necessary for the development of criteria for new and improved occupational safety and health standards. After consideration of the results, recommendations are to be made concerning new or improved occupational safety and health standards. Any standard so recommended shall immediately be forwarded to the Secretary of Labor and the Secretary of Health, Education and Welfare.

In addition, the director of the Institute is authorized to:

1. Prescribe regulations governing the manner in which functions will be performed;
2. Obtain, receive, or sell property for the purposes of the Institute in carrying out its functions;
3. In accordance with the civil service laws, appoint and fix the compensation for personnel necessary to carry out Institute functions;
4. Accept and utilize the services of volunteers and non-compensated personnel and reimburse them for travel expenses;
5. Obtain the services of experts and consultants as necessary;
6. Enter into contracts, grants or other arrangements to carry out the functions of the Institute;

7. Make other necessary expenditures.

The Director shall submit annual reports of the operations of the Institute to the Secretary of Health, Education and Welfare, the President, and the Congress.

Section (23) - Grants to States

The Secretary of Labor during fiscal years 1971, 1972, 1973 is authorized to make grants to the states which have a designated state agency developing a state plan, in order to assist them in:

1. Identifying their needs and responsibilities in the area of occupational safety and health;
2. Developing state plans;
3. Developing plans for:
 - a. establishing systems for collecting information concerning the frequency and nature of occupational injuries and diseases,
 - b. increasing the expertise and enforcement capabilities of their personnel engaged in occupational safety and health programs,
 - c. otherwise improving the administration and enforcement of state occupational safety and health laws.

The Secretary of Labor during the fiscal years 1971, 1972, and 1973 is authorized to make grants to the states for experimental and demonstration projects consistent with the objectives of developing state plans or standards. The federal share for each state grant shall not exceed 90% of the total cost of the application.

The Secretary of Labor is authorized to make grants to states to assist them in administering and enforcing programs for occupational safety and health contained in approved state plans. The federal share for each state grant for this purpose shall not exceed 50% of the total cost to the state of such a program.

Section (24) - Statistics

The Secretary of Labor in consultation with the Secretary of Health, Education and Welfare shall develop and maintain an effective program of collection, compilation, and analysis of occupational safety and health statistics. This program may cover all employments whether or not subject or provisions of this act except those specifically excluded, i.e., federal and state agency employees subject to previously promulgated federal safety and health standards and regulations.

To carry out their duties, the Secretary of Labor may:

1. Promote, encourage, or directly engage in programs of studies, information and communication concerning occupational safety and health statistics;
2. Make grants to states or political subdivisions thereof to assist in developing and administering programs dealing with occupational safety and health statistics;
3. Arrange through grants or contracts such research and investigations as give promise of furthering the objectives of this section.

The federal share for each grant may be up to 50% of the state's total cost.

On the basis of the records made and kept under the inspections, investigations, and record-keeping section, employers shall file such reports with the Secretary of Labor as he shall prescribe by regulation as necessary to carry out his function under this act.

Section (25) - Audits

Each recipient of a grant shall keep records as prescribed by the Secretary of Health, Education and Welfare including records which fully disclose the amount, disposition of funds, recipient, total cost of the undertaking, amount of funds from other sources and other records that will facilitate an effective audit.

The Secretary of Labor, the Secretary of Health, Education and Welfare and the Comptroller General of the United States or any of their duly authorized representatives shall have access for the purpose of examination to any books, documents, papers or records of the recipients of any grant under this act that are pertinent to any such grant.

Section (26) - Annual Reports

Within 120 days following the convening of Congress, the Secretary of Labor and the Secretary of Health, Education and Welfare shall each submit to the President for transmittal to Congress a report on the subject matter of this act. The report will include the progress toward achievement of the purpose of the act, needs, and requirements in the field of occupational safety and health and other relevant information regarding all aspects of occupational safety and health contained in this act.

Section (27) - National Commission on Workmen's Compensation

The Congress has determined that the majority of American workmen and their families are heavily dependent upon workmen's compensation for basic economic security whenever there has been a death or disability injury as a result of employment. This requires an adequate, prompt and responsive system of workmen's compensation. In recent years, doubt has been raised concerning the fairness and adequacy of the present workmen's compensation laws in light of new technology, growth of the economy, changes in cost of living, nature of the work force and other factors which have introduced changes over time.

In order to determine if state workmen's compensation laws provide an adequate, prompt, and equitable system of compensation, the Congress establishes a National Commission on State Workmen's Compensation Laws to make an effective study and evaluation of such laws.

The Workmen's Compensation Commission shall be composed of 15 members appointed by the President and shall designate one member as Chairman and one to serve as Vice Chairman. Eight members shall constitute a quorum.

The Workmen's Compensation Commission shall undertake a comprehensive study and evaluation of state workmen's compensation laws in order to determine if such laws provide an adequate, prompt, and equitable systems of compensation.

The Workmen's Compensation Committee shall make a final report to the President and the Congress not later than

July 31, 1972 containing a detailed statement of the findings and conclusions of the commission, together with the recommendations it deems advisable.

Section (28) - Economic Assistance to Small Business

The Small Business Act is amended to provide loans either directly or through lending institutions as the administration may determine to be necessary or appropriate to assist any small business concern in effecting additions or alterations in order to comply with applicable occupational safety and health standards, if the administration determines that such concern is likely to suffer substantial economic injury without such assistance.

Section (29) - Additional Assistant Secretary of Labor

Section 2 of the Act of April 17, 1946 is amended to provide for an "Assistant Secretary of Labor of Occupational Safety and Health."

Section (30) - Additional Positions

Section 5108(C) of title 5, U.S.C. is amended so as to allow the Secretary of Labor to place an additional twenty-five positions in the Department of Labor in GS 16, 17, and 18 for the purposes of carrying out his responsibilities under the Occupational Safety and Health Act.

Section (31) - Emergency Locator Beacons

Section 601 of the Federal Aviation Act of 1958 is amended by inserting at the end a new subsection regarding emergency locator beacons for certain aircraft [text of subsection is not pertinent to this thesis].

Section (32) - Separability

If any provision of this act shall be held invalid, the remainder of the Act shall not be affected thereby.

Section (33) - Effective Date

This act shall take effect one hundred and twenty days after the date of its enactment. Approved December 29, 1970.

III. CURRENT ATTITUDES

Senator Charles H. Percy in December 1976 summed up the current feeling towards safety and health when he addressed proposed legislation to provide a disciplined plan to achieve timely and comprehensive reform of federal regulatory agencies [Ref. 18].

Often when I talk to business leaders, they tell me that too stringent environmental, health, and safety regulations are ruining them. But they gloss over the widespread waste caused by much of today's economic regulations. When I talk to labor leaders, they complain about anti-competitive regulation of certain industry, but they overlook the costly effects of OSH Administration (OSHA). When I talk to consumer leaders, they decry the effects of a good deal of economic regulation, but imply hands off when it comes to health and safety matters.

A. EMPLOYER PERSPECTIVE

As initially mandated by Congress, at the urging of business, the OSH Act was to use regulations from "existing consensus standards." Unfortunately, this resulted in undesirable occurrences like the adoption of construction industry standards across-the-board to areas including plant maintenance and repair and even light home construction. On the other hand, many general industry standards were adopted for and applied to construction work. As a result, numerous types of work are controlled and regulated by consensus standards never intended to apply to them. In other words, the vertical standards of individual industries had been applied horizontally to all industries [Ref. 19].

This created a business concern with the economic impact of the standards, which in part prompted President Ford on 27 November 1974 to issue an executive order requiring inflation impact statements of all executive agencies on major rules and regulations [Ref. 20].

Other concerns expressed by business after passage of OSH Act included:

1. A need to switch emphasis from standards that are specification requirements to standards that are performance oriented, permitting industry to adapt existing equipment to the performance standards instead of buying new equipment meeting specifications;
2. A need to reduce the complexity and vagueness of the standards;
3. A need to standardize the OSHA inspection and enforcement practices between the various OSHA regions and between other competing federal inspection agencies, e.g., Mines Enforcement Safety Agency, Department of Transportation (regulating railroad safety and operations), and between state programs which have been accepted because they meet or exceed OSH Act standard.
4. A need to make the standards more flexible, thereby encouraging innovation;
5. A need to revise the statistics and record-keeping requirements to provide the most effective program of collection, compilation, and analysis of occupational safety and health statistics;

6. A need to provide government consultive services without inspection so employers could get help in interpreting the standards and learning how to comply [Ref. 21].

Interestingly, a survey taken of 2000 employers in New York in 1976 demonstrated that of those employers inspected by OSHA, 83% said that compliance with OSH Act standards did not cause them undue economic hardship and 78% said that imposition of OSH Act standards served the purpose of protecting the safety of workers. Of those not inspected, 94% said they felt no undue economic hardship because of OSH Act, but only 45% agreed that OSH Act standards served to protect the safety of workers [Ref. 22].

B. EMPLOYEE PERSPECTIVE

As seen through the eyes of a union, the primary shortcoming of the OSH Act is that it provides too many phases for postponement of responsibility by the employer. The employer can challenge the Act's enforcement through appeal in courts and could be granted a favorable position where imminent danger must wait upon a court's evaluation. This leaves the burden of exposure to the danger on the worker. In some cases, employers have received wide variances or long abatement periods from the standards because they could not obtain proper personnel or equipment to construct or alter their facilities.

The imposition of economic impact statements on new standards is seen as a resistance on the employer's part

to comply with the full intent of the law, thereby affecting workers' lives. In an effort to prevent further weakening of the act, organized labor is lobbying against its erosion and is engaging in major collective bargaining efforts over safety and health issues.

Since the OSH Act in 1970, work stoppages in basic U. S. industries have had safety and health issues as dominant or underlying causes. Safety and health grievances have also significantly increased [Ref. 23].

On the other hand, employees feel that many of the new standards cramp their work styles, while others fear the government's power to shut down their workplace [Ref. 24]. One proposed farming regulation required workers entering a field within two days of spraying with a pesticide to wear impermeable clothing, face mask, gloves and boots. Even workers who wanted more protection against pesticide contamination protested they wouldn't wear such clothing in the 100+ degree heat in which they often worked [Ref. 25].

In further intimidation of the employee, the Department of Labor advises as follows:

There are no legal sanctions for employees who violate OSHA standards . . . [but]* . . . you should: . . . Comply with all OSH standards that apply to your function in your workplace. Follow all of your employer's safety and health rules and regulations and wear and use all prescribed protective gear and equipment . . . [and]* . . . you are expected to comply with all internal or administrative safety and health rules and regulations issued or deemed appropriate by your employer. Failure to obey your employer's safety and health rules may result in his reprimanding, suspending, or dismissing you [Ref. 26].

C. CONGRESSIONAL PERSPECTIVE

In 1975, the Senate Subcommittee on Labor with assistance from the General Accounting Office studied OSHA and concluded that OSHA failed to develop necessary statistical information to either measure its impact on safety and health or permit management of the program. Specific conclusions included the following:

1. There were no uniform application of guidelines for issuance of citations.
2. Too few serious violations were being cited.
3. Unduly long delays were experienced in processing complaints or issuing citations even where the death of an employee occurred.
4. OSHA had not exercised its authority to require employers to conduct self inspections and took too long to promulgate standards and handle criteria documents [Ref. 27].

Today, seemingly at every opportunity, Congressmen side with their constituency in their condemnation of OSH Act as being overpriced, with unreasonable and arbitrary regulations. Congressmen are quick to point out gross examples of the absurdity of a specific OSH Act regulation and repeatedly threaten to amend or rescind the law.

In addition, OSHA - is loudly criticized by members of Congress for its lack of enforcement, its inefficiency, its delay and its failure to protect the worker. However, on July 28, 1976, the House, by a 309-86 vote margin voted to wrest control of the Mining Enforcement and Safety

Administration (MESA) from the Department of the Interior and give it to the Department of Labor concluding that "the life and health of the worker should be under the jurisdiction of the department that has historically been concerned and charged with safeguarding the welfare of the worker: namely the Department of Labor," [Ref. 28]. Although originally intended to remain separate from OSH Act, this transfer of MESA responsibility would consolidate enforcement activities within one governmental agency, thereby eliminating jurisdictional disputes concerning responsibilities for regulating surface and above-ground mining operations and thereby strengthening the position of both OSH Administration and MESA.

Strongly opposed by President Ford's Administration because of the poor record of enforcement that OSH Administration had under the Labor Department, the Senate did not bring this legislation up to a vote in 1976, preferring to wait until the new Carter Administration took office.

D. THE COURT'S PERSPECTIVE

In the general field of labor law, adjudicative agencies have been overburdened with extremely large numbers of cases (e.g., in January 1976 over 114,000 such cases were pending [Ref. 29]). To avoid this backlog, the OSH Act provided for a quasi-judicial hearing only when an employer contested a citation or a penalty as proposed by the OSH Administration. At the hearing, an administrative law judge of the Occupational Safety and Health Review Commission may uphold,

reject, increase or decrease the proposed citation. The Federal Court of Appeals in New Orleans ruled that the system does not unconstitutionally discourage employers from contesting proposed citations [Ref. 30].

On 30 December 1976, the U. S. District Court of Idaho held that Section 8(a) of the OSH Act, the inspection provision which had attempted to authorize warrantless inspections of those business establishments covered by the Act, is unconstitutional and in violation of the Fourth Amendment [Ref. 31]. In April 1977 the Supreme Court voted to hear the government's appeal of this Idaho court decision. This appeal will be based on other Supreme Court rulings which approved unannounced searches in other federal inspection programs such as those applied to the food industry, coal mining and egg production [Ref. 32].

In another case, the Supreme Court has agreed to review a suit brought against OSH Administration by Gibson Products, Inc., an East Texas discount store that refused to let an inspector in without a search warrant. A U. S. District Court ruled that Gibson was within his rights.

Within its own judicial channels several of OSH Act standards were attacked. One administrative judge has, in the case of the Continental Can Company, ruled against the OSH Administration.

Unions have attempted to bring suit against OSH Administration. In one case the unions were saying that OSH Administration should cease considering inflationary impact

in enforcing its standards, a position which OSH Administration, ironically, supports. OSH Administration had been trying unsuccessfully to be exempted from the executive order imposing this on all federal agencies [Ref. 33].

In the first Supreme Court test, Atlas Roofing Company and Frank Iray Jr., Inc. versus OSH Administration challenged the constitutionality of the OSHA authority to assess penalties without trial by jury. The court ruled that because OSH Act cases were subject to review in the federal appeals' courts, they did not violate the Seventh Amendment of the Constitution, which says that "in suits at common law" involving more than \$20, "the right of trial by jury shall be preserved." The court said Congress wasn't required, by the Constitution's guarantee of a jury trial, "to choke the already crowded federal courts with new types of litigation nor prevented from committing some new types of litigation to administrative agencies with special competence in the relevant field," [Ref. 34].

Other lower court cases, still to be reviewed by the Supreme Court, could significantly impact on the OSH Act. Should the Supreme Court ruling be against the OSH Administration, sections of the act would probably have to be rewritten. This would open the door to lobbies which could force the removal of other elements of the act undesirable to the lobby supporters. There is definitely more court action to come.

IV. DEPARTMENT OF DEFENSE (DOD) POLICY

A. APPLICABILITY AND SCOPE

On June 15, 1976 the current DOD policy directive on accident prevention, safety and occupational health was issued [Ref. 35]. It is applicable to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the Unified and Specified Commands, and the Defense Agencies "wherever DOD resources are positioned or utilized," [Ref. 36].

B. POLICY

With respect to the Occupational Safety and Health Act, DOD policy is to develop, budget for and manage within the DOD, accident prevention, safety, and occupational health programs designed to (a) prevent employee injury and occupational illness, and (b) protect federal equipment, material, and facilities from damage or loss. Specifically, these programs shall:

1. Afford an adequate degree of protection to the public from DOD operations;
2. Meet requirements of section 19, of the OSH Act;
3. Include other elements cited in section 2 of EO 11807. In order to ensure that programs are consistent with the standards prescribed by section 6 of the OSH Act, this DOD policy requires that DOD agencies:

- a. Appoint a program manager;
 - b. Establish a program management information system;
 - c. Establish procedures for the adoption of occupational safety and health standards;
 - d. Assure prompt attention to reports;
 - e. Assure periodic inspections;
 - f. Assure prompt abatement or unsafe or unhealthful working conditions;
 - g. Provide training;
 - h. Cooperate with and observe guidelines published by the Secretary of Labor.
4. Observe the guidelines in 29 CFR 1960 which carry out the Secretary of Labor's requirement to issue regulations and guidelines for the safety and health programs of various federal agencies, consistent with the mission, size, and organization of each component.

C. RESPONSIBILITY

In assigning responsibilities to heads of all DOD components, the Secretary of Defense further charged that "accident prevention, safety and occupational health programs provide protection for military and civilian employees comparable to or exceeding that afforded private sector employees by Public Law 91-596," [Ref. 37], the OSH Act.

V. SECRETARY OF THE NAVY (SECNAV) POLICY

A. OBJECTIVE

On October 21, 1976 the Secretary of the Navy issued an accident prevention, safety, and occupational health policy implementation instruction [Ref. 38]. This instruction reiterated the DOD directive 1000.3 of June 15, 1976 and set as its objective the establishment and maintenance of an effective, aggressive, and centrally directed program with technically qualified personnel in order to:

1. Enhance operational readiness by reducing to the minimum occupational injuries, illnesses, or deaths;
2. Create and maintain safe and healthful working conditions through correction of facility deficiencies to the maximum extent practicable within budgetary constraints;
3. Safeguard government property.

B. APPLICABILITY AND SCOPE

This program is to provide protection afloat or ashore, both on and off naval installations. All Navy civilians and military personnel, non-appropriated funded personnel, off-duty military personnel, dependents and visitors will be protected while aboard naval vessels, aircraft or vehicles, or on shore installations and Navy property.

C. POLICY

Specific policy of the program emphasizes the inherent responsibility of command with respect to accident prevention, safety, and occupational health and specifies that "necessary responsibilities shall be clearly assigned to all supervisory echelons," [Ref. 39]. All activities are to create an awareness of good safety and health practices while integrating precautionary measures into training and indoctrination programs and into technical and tactical publications and check-off lists. Where required for unique situations, special training programs shall also be established. With regard to organization, procedures for inspections and abatements, occupational safety and health standards, and exchange of ideas and information throughout the government with respect to matters of occupational safety and health, the "Safety and Health Provisions for Federal Employees," 29 CFR Part 1960 is applicable (see subparts C through F).

D. RESPONSIBILITY

Under the direction of the Assistant Secretary of the Navy (Installations and Logistics) and after coordinating with the Commandant of the Marine Corps with respect to matters of mutual concern, the Chief of Naval Operations has the responsibility to:

1. Manage and administer the Navy accident prevention safety and occupational health programs including planning, programming, staffing and budgeting.

2. Promulgate necessary directives and insure their implementation;
3. Develop programs for inspection and abatement of unsafe or unhealthful working conditions;
4. Develop procedures for investigation and correction of reported unsafe or unhealthful conditions;
5. Develop reporting and recording procedures;
6. Ensure compliance with product safety standards;
7. Emphasize improvement of hazard awareness and accident reduction through safety and occupational health orientation and training;
8. Ensure cooperation in support of Field Federal Safety and Health Councils and with mutually beneficial local community accident prevention and safety programs;
9. Ensure the designation of appropriate officials to consult with representatives of employees or recognized labor organizations on safety and occupational health matters;
10. Coordinate activities of the Department of the Navy Occupational Safety and Health Committee.

VI. THE DEPARTMENT OF THE NAVY SAFETY PROGRAM

A. OBJECTIVES AND ORGANIZATION

Although predating the Secretary of the Navy's revised departmental policy instruction (SECNAV Instruction 5100.10C of 21 October 1976), OPNAV Instruction 5100.8C of 8 September 1975 captures the essence of the Secretary's objectives, applicability and scope. The Chief of Naval Operations perceives safety as an inherent responsibility of command. Consequently, his safety program is implemented through the chain of command and developed on a basis of centralized control, decentralized administration, and command implementation. Responsibility for safety is superimposed on the entire command structure. To facilitate administration, the total safety program is divided into primary and specific areas [Ref. 40].

Programs in the primary areas are the composite of policy, organization, and procedures for components of the operating forces, i.e., submarine, surface and aviation.

Programs in the specific areas are the composite of directives, standards, specifications, procedures, specialized equipment, and training concerned with promotion of safety in defined areas requiring special attention and/or technical expertise.

B. RESPONSIBILITY

Overall coordination of safety programs is the responsibility of the Commander, Naval Safety Center, acting in

his capacity as CNO Safety Coordinator. Individual command programs are to be aggressive and continuing, insuring safety responsibilities are clearly assigned to all echelons and applicable directions complied with.

Within the primary areas, programs are implemented, directed, and supervised within the Office of the Chief of Naval Operations.

Within the specified areas, Commander, Naval Safety Center, and the Chiefs of Naval Material, Bureau of Medicine and Surgery, and Naval Personnel as well as OP-04, while insuring consistency of policy and objectives, are responsible for:

1. Establishing safety standards;
2. Promoting research and development and procurement of safety devices;
3. Promulgating safety precautions, procedures, and information;
4. Investigating and analyzing hazards;
5. Providing technical advice for safety education;
6. Conducting specialized training.

This effort is to be done in "consonance as appropriate with requirements of the applicable portions of the Occupational Safety and Health Act of 1970 and Executive Order 11807," [Ref. 41] while insuring that systems safety principles as outlined in MIL Standards 882 are applied.

Incorporation of safety education in general training courses and specialized training and education as required

to support the overall Navy Safety Program is the responsibility of the Chief of Naval Training.

The Chief of Naval Material is responsible "to insure that safety is designed and engineered into all ships and aircraft, weapons and weapon systems, equipment, materials, supplies, and facilities which are required, constructed, or provided," [Ref. 42].

C. STANDARDS

With regard to the development of standards relating to accident prevention and occupational health, "it is the policy of the Chief of Naval Operations to apply, and develop as necessary, safety and health standards equal to, or better than, those promulgated for the private sector. . . . In situations involving unique military requirements, DOD and Navy developed safety and health standards will continue to apply," [Ref. 43]. "The determination of whether to retrofit or modify existing equipment or facilities for the sole purpose of being consistent with applicable OSHA standards will be based on whether hazard to life, material or property is greater because of inconsistency with the OSHA standard. In evaluating the need for correction, heads of DOD components should have evidence that the conditions, practices, means, methods, operations or processes used would be as safe and healthful as those which would prevail if the standard were followed," [Ref. 44].

D. THE NAVY SHORE SAFETY PROGRAM

The Navy-wide program to direct and coordinate all facets of safety and all activities of the Department of the Navy ashore not covered by special programs (e.g., aviation, explosives, fire), exists to safeguard all military and civilian personnel from injury or health hazards as a result of employment, recreation, residence, or presence at any shore activity, and to protect all property from accidental loss or damage [Ref. 45].

In keeping with CNO policy, the shore safety program emphasizes the command and supervisors' inherent responsibility for safety. Commanding Officers, with disciplinary authority in accordance with the Uniform Code of Military Justice, can impose and enforce safety rules more stringent than those imposed by higher authority. The CO is enjoined to give active support of safety through initiative and leadership and by delegation of authority [Ref. 46].

Headquarters of Commands, Bureaus and Offices are to establish Safety Officers to carry on effective accident prevention programs at subordinate activities. These officers are charged with:

1. Administration of command safety programs;
2. Survey of field activities;
3. Planning, development, evaluation and supervision of safety training;
4. Establishment of safety rules and practices;
5. Reviewing plans and specifications for new construction;

6. Reviewing new equipment and new processes for inclusion of new items to prevent accidents;
7. Reviewing suggestions involving safe practices;
8. The study of accident statistics to determine causes of accidents and recommend corrective steps.

Consolidated safety offices service all naval activities ashore within a District or Area Command, a geographical proximity or at activities which house tenant naval activities and units. These, like the Safety Office of individual activities ashore, function as local safety program administrators, preparing rules and regulations as directed, training and inspecting.

VII. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC) SAFETY PROGRAM

A. POLICY

Current safety policy at this command is reflected in the NAVFAC Instruction 5100.11B which includes two basic safety programs, the safety program for both military and civilian NAVFAC employees and the safety program relative to facilities design and contract construction [Ref. 47]. Command policy will be "to support actively and pursue aggressively all actions which will provide for:

- a. A comprehensive, effective safety program aimed at curtailing manpower and monetary losses due to accidents;
- b. A safe and healthful work environment for all personnel (military and civilian) employed within the Command;
- c. The safety of personnel occupying or exposed to facilities designed and/or constructed under cognizance of the Command;
- d. The enforcement of safety precautions leading to a safe and healthful work environment for all contractor personnel while working under contract jurisdiction of the Command," [Ref. 48].

B. RESPONSIBILITY

Safety and occupational health are acknowledged as command's inherent responsibility. Therefore, implementation,

direction and control are intended to be through the chain of command, with the line managers and supervisors being primarily responsible for assuring safe operations and working conditions. Safety program administration and advisory responsibility are perceived as a staff function. Individual responsibilities of the employee include:

- "1. Compliance with all safety and occupational health rules, regulations and instructions promulgated by the activity command, and with supplemental instructions, oral or in writing, given by the responsible supervisor.
2. Reporting immediately to the responsible supervisor, an injury, occupational illness, or property damage resulting from an accident, or any situation or condition which could impair the health and well-being of employees, that has been encountered or observed during work," [Ref. 49].

C. STANDARDS

With regard to safety and health standards, OSH Act standards are adopted as minimum Navy standards and all NAVFAC employees "shall effect compliance with these standards or with other governing statutory standards, unless superseding specific DOD or Navy standards have been adopted and directed for use. In countries where OSH Act is not applicable, safety and occupational health standards of the country where the activity is located shall be adopted as

minimum requirements; these shall be supplemented by OSH Act, DOD, Navy or locally developed standards as determined appropriate," [Ref. 50].

D. U.S. NAVAL CONSTRUCTION FORCE (NCF) SAFETY PROGRAM

U. S. Naval Construction Force safety program, reflecting Secretary of the Navy Instruction 5100.14 (which superseded previously referenced instructions in this thesis), is, " . . . to pursue an aggressive and dynamic safety program throughout the Naval Construction Force. The safety of personnel and the protection of all government property shall have top priority under all circumstances. Tight schedules and poor working conditions shall not be accepted as excuses for relaxation of safety standards," [Ref. 51]. Respective Headquarters are to maintain records, monitor and analyze reports, develop charts, evaluate and publish periodic information to subordinate units.

Commanding officers/officers-in-charge have responsibilities to ensure that all requirements set forth in the NCF Safety Manual are carried out. Ultimately they will be held responsible for each accident within their command.

Subordinate to the Commanding Officer/Officer-in-Charge are his company commanders, detail officers-in-charge (OICs), team OICs, project officers, field supervisors, crew leaders, and all others in positions of leadership and authority. These subordinate supervisors are responsible for the safe conduct of personnel under their direction and necessary training of these personnel to safely prosecute the work assigned.

Finally, each member of the Naval Construction Force is charged with adherence to and active support of policies and practices set forth in the NCF Safety Manual.

VIII. APPLICABILITY OF OSH ACT TO THE NAVAL CONSTRUCTION FORCE

A. STATUTORY DIRECTIVES

U. S. Naval Construction Forces have a statutory requirement to comply with the intent of the OSH Act based on the following sequence of a law, orders, regulations, directives and instruction as updated:

Public Law 91-596, OSH Act, Section 19	December 29, 1970
Executive Order 11612	July 26, 1971
Executive Order 11807	September 28, 1974
Code of Federal Regulations (CFR), Title 29, Parts 1960, 1910, 1915-1918, and 1926	as current
DOD Directive 1000.3	June 15, 1976
SECNAV Instruction 5100.10C	October 21, 1976
OPNAV Instructions 5100.8C and 5100.14	September 8, 1975 August 11, 1970
COMCBPAC/COMCBLANT Instruction 5100.1C	February 8, 1971

B. CFR TITLE 29 REQUIREMENTS

The CFR is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the federal government. CFR Title 29 publishes the standards required under the OSH Act.

The following synopsis of key parts of CFR Title 29 identifies the extent to which NCF operations may come under the OSH Act.

1. Part 1960 - Safety and Health Provisions for Federal Employees

The primary purpose of the OSH Act is to assure safe and healthful working conditions for all employees. While the enforcement procedures in section 8, 9 of the OSH Act and other related sections do not apply to the Federal sector, Section 19 of the OSH Act contains special provisions for Federal employees. In light of experience with Executive Order 11612 issued July 26, 1971 to implement the provisions of Section 19, a new Executive Order 11807 was issued on September 28, 1974. The new order, while phrased in non-mandatory terms, requires that the heads of Federal agencies observe the guidelines issued by the Secretary of Labor, taking into consideration the mission, size, and organization of the agency. These guidelines are to constitute a framework for a strong occupational safety and health program for Federal employees [Ref. 52].

Recordkeeping and reporting requirements for occupational injuries, illnesses and accidents [Ref. 53], the guidance as to agency organization [Ref. 54], and procedures for occupational safety and health inspections and abatements [Ref. 55] are prescribed by the Secretary of Labor. Agency occupational safety and health standards, as required by Executive Order 11807, shall be "consistent" with the standards promulgated pursuant to section 6 of the OSH Act providing protection to employees which is at least as effective as the protection provided by the OSH Act standards. These OSH Act standards should in most cases be adopted

as agency standards unless an agency head determines that employees are not and will not be exposed to working conditions for which an appropriate group of OSH Act standards have been promulgated, i.e., standards as published by CFR Title 29, Parts 1910, 1915, 1916, 1917, 1918, and 1926 [Ref. 56].

2. Part 1910 - Occupational Safety and Health Standards

The legislative purpose of this part "is to establish, as rapidly as possible . . . standards with which industries are generally familiar, and on whose adoption interested and affected persons have already had an opportunity to express their views. Such standards are either (1) national consensus standards on whose adoption affected persons have reached substantial agreement, or (2) Federal standards already established by Federal statutes or regulations," [Ref. 57].

Considered a standard for general industry, this part applies to construction work, ship repairing, shipbuilding, shipbreaking, and longshoring. It includes standards within the following areas:

- a. walking and working surfaces
- b. powered platforms, manlifts and vehicle mounted work platforms
- c. occupational health and environmental control
- d. hazardous materials
- e. personal protective equipment
- f. general environmental controls
- g. medical and first aid
- h. fire protection
- i. compressed gas and compressed air equipment
- j. materials handling and storage
- k. machinery and machine guarding
- l. hand and portable powered tools and other hand-held equipment

- m. welding, cutting, and brazing
- n. special industries
- o. electrical
- p. diving operations
- q. toxic and hazardous substances

3. Part 1915 - Safety and Health Regulations for Ship Repairing

This part clarifies responsibilities and regulatory authorities in matters related to safety and health regulation for ship repairing. Additionally, other related specifications, standards and codes as specified in Part 1915 are made a part of this regulation [Ref. 58].

Specific standards for ship repairs are identified in the following areas:

- a. explosive and other dangerous atmospheres
- b. surface preparation and preservation
- c. welding, cutting and heating
- d. scaffolds, ladders and other working surfaces
- e. general working conditions
- f. gear and equipment for rigging and materials handling
- g. tools and related equipment
- h. personal protective equipment
- i. ship's machinery and piping systems
- j. portable, unfired pressure vessels, drums, and containers, other than ship's equipment
- k. electrical machinery

4. Part 1916 - Safety and Health Regulations for Shipbuilding

The purpose of this part is the same as Part 1915, although applicable responsibilities, regulatory authorities specifications, standards and codes are not necessarily the same. The general areas where specific standards for shipbuilding have been applied are the same as for ship repairs, (see preceding paragraph). However, the standards are not necessarily identical in nature or purpose [Ref. 59].

5. Part 1917 - Safety and Health Regulations for Shipbreaking

This part clarifies responsibilities and regulatory authorities in matters related to safety and health regulations for shipbreaking. Other related specifications, standards and codes are identified and made a part of this regulation. The general areas where specific standards for shipbreaking have been applied are the same as for ship repairs except that those ship repair areas numbered (2), (9), (10), and (11) are deleted. Those included areas do not necessarily have the same standards or serve the same purpose [Ref. 60].

6. Part 1918 - Safety and Health Regulations for Longshoring

This part clarifies responsibilities and regulatory authorities in matters related to safety and health regulations for longshoring. Other related standards are identified and as specified are made a part of this regulation [Ref. 61]. Standards are identified in the following general areas of longshoring:

- a. gangways and gear certification
- b. means of access
- c. working surfaces
- d. opening and closing hatches
- e. ship's cargo handling gear
- f. cargo handling gear and equipment other than ship's gear
- g. handling cargo
- h. general working conditions
- i. personal protective equipment
- j. cargo gear register and certificates

7. Part 1926 - Safety and Health Regulations for Construction

This part sets forth the safety and health standards promulgated for construction [Ref. 62]. Standards are

identified in the following areas of construction:

- a. general safety and health provisions
- b. occupational health and environmental controls
- c. personal protective and life saving equipment
- d. fire protection and prevention
- e. signs, signals, and barricades
- f. materials, handling, storage, use and disposal
- g. tools--hand and power
- h. welding and cutting
- i. electrical
- j. ladders and scaffolding
- k. floors and wall openings, and stairways
- l. cranes, derricks, hoists, elevators, and conveyors
- m. motor vehicles, mechanized equipment, and marine operations
- n. excavations, trenching and shoring
- o. concrete, concrete forms, and shoring
- p. steel erection
- q. tunnels, and shafts, caissons, cofferdams, and compressed air
- r. demolition
- s. blasting and use of explosives
- t. power transmission and distribution
- u. rollover protective structures; overhead protection.

It is apparent from reviewing the above areas that virtually every NCF construction-related activity is impacted upon by the standards established within 29 CFR Part 1960 [Ref. 63]. Within these areas, standards can be added or changed or deleted at any time with possible further impact on NCF construction-related operations.

IX. DISCUSSION

A. IMPACT OF OSH ACT IN GENERAL

With the enactment of the Occupational Safety and Health Act in 1970, the Congress set into motion the involvement of the federal government into all facets covering the full spectrum of occupational safety and health with regard to both employees and employers alike. With its initial momentum and the intrinsic good inherent within the Act, it is unlikely that the provisions of the Act will be eliminated or will die a natural death or lapse into obscurity because of lack of interest or support.

This law has impacted directly and more oftentimes indirectly on the nation's population. The law has the best interest of the individual worker at its center reflecting the spirit and attitudes upon which the United States prides itself. With the force of law combined with financial support and the expanding functioning bureaucracy that exists throughout the federal and state sectors, the effect of the Occupational Safety and Health Act is being felt in almost all workplaces and without regard to geographical location or organizational level. As its short history has shown, the force exhibited by the act has gathered momentum and the speed though slow at first is now increasing with the provisions of the act being felt by more and more of the American workforce.

The provisions of the Occupational Safety and Health Act are a fact that must be realized and faced by employers and other affected persons and agencies. Not only does the intent and spirit of the law need to be complied with but the letter of the law must be handled adequately by management personnel. Although adequate occupational safety and personnel healthful well-being is the real objective of the act, the measurement of achieving this objective rests with the compliance with surrogates and standards which now have the effect of law.

B. IMPACT OF OSH ACT ON OSD

While it is true that federal and state agencies are exempt from the provisions of the Occupational Safety and Health Act, the Act does, however, require the establishment of occupational safety and health programs that contain standards which are equal to or better than the standards required by the Act.

With regard to the Department of Defense this requirement cannot be met totally due to the very nature of defensive operations, requirements and responsibilities. The Act states in section 16 that rules and regulations may be made by the Secretary of Labor which allow reasonable variations to and from any or all provisions of the act as necessary and proper to avoid serious impairment of the national defense. Therefore, the Occupational Safety and Health Act does not appear to apply to military/wartime situations.

However, the question still remains regarding the application of the requirements of the Act for those Department of Defense personnel, military or civilian, not involved in defensive operations. At the Washington level, one of the decisions pending regards a proposal that the military be excluded from the Occupational Safety and Health Act because of the obvious hazards associated with their chosen occupation. Being able to get a positive determination seems remote because of the many industrial, commercial and other support functions that make up the support elements for the combat forces and operating units. Such a decision to exempt the military would be open to criticism and constant attack from without and within the military by various interest groups. It, therefore, seems logical that certain support elements or functions of the military should and could appropriately come under the auspices of OSH Act standards.

C. IMPACT OF OSH ACT ON THE NAVY

The Department of Defense has directed each military service, without reservation, to follow through on complying with the intent and requirements of the Occupational Safety and Health Act as it pertains to the federal sector. The Department of Defense did not specify to the services, the standards to be used in their individual service programs. Instead, each service has the responsibility for complying with the applicable requirements of OSH Act.

Both the Secretary of the Navy and the Chief of Naval Operations have issued new instruction updating their safety policies to incorporate the requirements of Section 19 of OSH Act, applicable actions required by EO 11807 and establishment of appropriate positions to carry out the additional functions. Lower echelon commands are now in the process of changing their safety instructions and programs to incorporate the additional DOD and CNO requirements. Some of these instruction are in draft form only and are not yet ready for promulgation, because the major question still remains as to which standards are going to be followed.

The question of adaptation or outright adoption of OSH Act standards is a matter of ongoing discussions at the CNO level, with no indication which way the decision will go. There are significant arguments for each side. Adaptation of OSHA standards would require review and revision to service requirements, which would be very time, energy, and dollar consuming initially and on a continuing basis. On the other hand, adoption of OSH Act standards as OSD or CNO standards may place an enforcement requirement upon the Navy which would have significant financial impact.

D. IMPACT OF OSH ACT ON THE NAVAL CONSTRUCTION FORCE

Certainly, the OSH Act standards or an equivalent Navy standard regarding occupational safety and health can and should appropriately be applicable to all peacetime homeport and deployment construction training performed by NCF units.

However, the establishment of training requirements and the familiarization with use of tools and equipments should not be structured to develop attitudes and work techniques which would restrict the units readiness and effectiveness for combat operations. In terms of national defense, the unit commander should have the authority and responsibility to carry out his primary military duties, i.e., defense (which includes safety of personnel) without restrictions generated by all inclusive but confining safety standards/requirements.

For several years, the Naval Construction Force has had a comprehensive and positive safety program that was primarily aimed at reducing accidents and the loss of government property. While the program is good, there appears to be a weakness in the assessment and control of the long term, more subtle occupational health hazards wherein the injury is not immediately apparent and traumatic.

Whether or not the decision regarding adaptation or adoption of OSH Act standards results in adaptation of service standards, the impact of OSH Act standards is already incorporated into the equipment, tools, materials, and supplies purchased in the future by the military unless procured by contracts specifying otherwise. With the exception of tactical equipments, the tools, equipments, materials, and supplies being purchased for use by all Naval Construction Force units are either conforming to or will soon be conforming to OSH Act standards because manufacturers are required by law to conform. Examples are

turnover protection, seat belts, noise level protection, backing alarms, etc. for construction equipment. No specific effort is needed to ensure such design features are included in purchased items.

The only areas where this would not necessarily be true is for those elements of equipment that are designed and procured specifically for combat operations. For these specific items, the Naval Construction Force must rely upon Army procurement contracts for purchase of this gear. Thus, the Naval Construction Force units will undoubtedly follow the Army procurement policies.

Implementation of OSH Act standards for tools, equipments, and materials into the NCF units through attrition of existing tools, etc., seems to be the feasible way to financially make the change from existing standards to the more stringent requirements. Safety features designed and manufactured as part of the original piece of equipment or tool certainly are more cost effective and efficient than attempting to make field modifications by many different operating units having various levels of skill. Also, field units would have a tendency to resist modifications which may require accomplishment using their limited fiscal resources or their facilities and manpower.

With respect to training and development of the skill level of the NCF workforce in occupational safety and health OSH Act standards or service standards equal to or in excess to the OSH Act standards would require

approximately the same degree of expertise and training for all concerned as is presently conducted. From the standpoint of Naval Construction Force units, adherence to OSH Act standards would be easier to initiate, maintain and adhere to than service standards, due to the availability of training programs, training aids, information from trade organizations, unions and other information developed and published for the construction industry with regard to occupational safety and health. Also, new personnel with construction or related experience who join the NCF would have less difficulty adjusting to service standards.

Construction techniques and methods employed by the Naval Construction Force are not any different than the private sector nor unique to military applications. As stated earlier, much time, energy and money would be required to keep separate service standards current. Thus, there appears to be no apparent beneficial gain to be accomplished by developing separate and distinct standards for Naval Construction Force units.

The success of any safety program, regardless of the standards established, rests with how management executes its various responsibilities. The Occupational Safety and Health Act and various instructions promulgated by the Department of Defense, Chief of Naval Operations and other echelons of command have placed emphasis on providing a safe and healthful workplace and environment. This

essentially addresses working conditions, physical items of safety equipment and tangible items to control worker environment.

However, unsafe conditions or lack of appropriate safety devices account for only 2 to 15 percent of all industrial accidents, with the other 85 to 98 percent attributed to unsafe acts. Albeit employers are responsible for providing safe environmental conditions (and in practice are inspected and evaluated on their success in conforming to these standards), the greatest amount of progress toward achieving reductions in personal injuries could be realized by preventing unsafe personal acts which result in industrial accidents. While the stress from the OSH Act is more on the employers to conform to prescribed standards, pressure and responsibilities should likewise be put on employees. Regardless of the amount of employee training, incentive programs established to foster safe work habits and the vast quantities of rules and regulations promulgated by the employer to control the actions of the employee, the employee has no demonstrated responsibility nor incentive to act at all times in a safe manner. The actions of employers must guide and direct employee conduct so that unsafe acts are discouraged.

The NCF safety program has been relatively successful in the past. However, the extent and scope must be expanded to include occupational health as well as compliance with the full intent of the OSH Act. Safety has been and is

a vital part of any NCF unit's efforts, but often times optimum effectiveness has not been achieved for reasons including the following:

1. Safety billets are neither glamorous nor sought after and being in such a billet does not increase the technical skill and proficiency of workers which is necessary for promotion. Therefore, safety positions do not attract nor hold their share of top quality people due to competition with operational billets.
2. Administrative duties and/or limitations on the number of staff often times over-extends safety personnel, so that they soon believe that the emphasis on safety may not be so important after all.
3. Safety by the young and inexperienced men which comprise the greatest number of the NCF workforce is not normally looked upon as an aid to production, but more as a bureaucracy and a set of regulations that are inevitable and must be tolerated. Thus a command that weakly supports the safety program regardless of the merit of the program is not optimally effective in meeting the unit's safety needs.

There have been numerous suggestions and recommendations regarding improvements to the NCF safety program throughout the past years, but the right combination of events or timing to make significant changes in safety have not

occurred. The prestige of the personnel responsible for safety has not been high. Authority and power to take immediate positive action is not always granted plus the personal ability of safety personnel to take such action is not always there. Perhaps the interest and controversy generated by OSH Act and the resulting decisions regarding occupational safety and health as they are incorporated into the NCF occupational safety and health program might give the field of safety the clout and prestige necessary to attract and keep the attention of management and top quality construction personnel.

The occupational safety and health program in the NCF needs:

1. Respect and prestige that will attract top people to manage and operate safety programs.
2. Knowledge and training in appropriate occupational safety and health.
3. Command emphasis and continuing support.
4. Well organized command safety programs wherein responsibilities for safety go all the way down to that lowest supervisor and worker.

Naturally, safety training and a positive attitude toward safety must be instilled into the work force at all levels. Training in safety requirements concerning conditions and actions must be included in assigned tasks and made a part of each and every undertaking. Discipline must

be fairly administered for willful infractions of the safety requirements. Proper placement of employees is also necessary to achieve the proper alignment of resources with requirements.

X. CONCLUSIONS

A. CURRENT IMPACT OF OSH ACT WITHIN THE NCF

The NCF is not required to comply specifically with OSH Act. Federal and State agencies are exempt from the Act except that they must develop occupational safety and health programs which contain standards that are equal to or greater than the standards promulgated by the Secretary of Labor as a result of OSH Act.

NAVFAC Instruction 5100.11B of 17 Feb 77 requires that units develop occupational safety and occupational health programs which comply with the Federal requirements of OSH Act, i.e., containing standards equal to or greater than those promulgated by the Secretary of Labor. However, neither this instruction nor those promulgated by the Department of Defense, Secretary of the Navy, or Chief of Naval Operations give specific guidance to their field activities regarding whether the promulgated OSH Act standards will be adopted for Navy use or if the Navy will appropriately adapt the existing Navy standards to meet or exceed OSH Act standards. This decision is left up to the field activities to make.

Adoption of the OSH Act standards in peacetime for application to the Naval Construction Forces would not appear detrimental to mission training or operational readiness. Adoption of the OSH Act rather than developing

separate standards is recommended for the following reasons:

- (a) Navy standards would be uniform with industry standards which are normally followed closely by NCF;
- (b) Adaptation of separate Navy standards to meet or exceed OSH Act requirements would be costly, time and manpower consuming and would require large initial development programs and continual maintenance and updating of standards thereafter;
- (c) Training at industry schools could be utilized, which would be cost effective and desirable;
- (d) Protective equipments, guards, clothing, and other safety and health devices would correspond with industry standards.

B. EVALUATION OF CURRENT NCF SAFETY PROGRAMS

The current NCF safety program is good. However, there has been a weakness in identifying and measuring the long range effects of working environments and site conditions on the health of NCF personnel. Greater efforts needs to be made to identify and correct the weaknesses of existing NCF safety programs in this area. Examples of conditions that require improved attention to environmental health include noise pollution, use of toxic and hazardous substances, and sand blasting. Furthermore, training of appropriate NCF personnel in the aspects of environmental health needs to be accomplished.

In addition, the NCF Occupational Safety and Health Program should stress responsibility for individual acts in addition to concerns about environmental conditions. Individual attitudes toward safety are not fully supportive nor positive at many levels in the chain of command. Some actions that can be taken to improve the occupational safety and health program are hereafter listed and should be explored for potential benefits.

1. Incentives could be provided for top quality people to actively seek positions of responsibility in the Occupational Safety and Health Program. Suggested incentives include:

- a. Development of a construction safety rating within the enlisted ranks with a subspecialty in a specific construction skill. Assignment of PCS duty could alternate between specific safety billets and particular construction skill billets to provide a degree of flexibility in detailing personnel to duty.
- b. Requirement of a specific comment on evaluation and fitness reports regarding degree of safety conscientiousness and safety achievements or lack thereof.
- c. Requirement for duty in a safety billet for a specified period of time or equivalent duty or training as a prerequisite for advancement to E-6 or E-7.

2. Appropriate formal training could be provided in Occupational Safety and Health to all NCF personnel at all levels of command. The following training is suggested and should be investigated for application and appropriateness.
 - a. Training of enlisted personnel during homeport periods at Naval Construction Training Centers in occupational safety and health for general construction applications and in specific construction trades as appropriate for individual rates.
 - b. Training of officer personnel in Occupational Safety and Health as part of the basic course at CECOS for new officers entering the Civil Engineer Corps. Provide refresher/update training either coincident with other CECOS courses or as a separate course. An alternative approach could include attendance at an appropriate industry sponsored school.
3. Civilian safety billets could be established on each of the Naval Construction Force and Regimental staffs to provide a source of expertise and continuity in development and implementation of the NCF Occupational Safety and Health Program.

REFERENCES

1. Hammer, Willie, Occupational Safety Management and Engineering, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1976, p. 118.
2. Guralnik, David B., Editor in Chief, Webster's New World Dictionary, The World Publishing Company, New York, 1973, p. 267.
3. Hammer, op. cit., p. 33.
4. Public Law 91-596, Occupational Safety and Health Act, U. S. Government Printing Office, Washington, D. C., 1970, p. 1591.
5. Hammer, op. cit., p. 15.
6. Ibid., p. 16.
7. Ibid., pp. 20-23.
8. "Passage of Job Safety Bill Ends Three-Year Dispute," Congressional Quarterly Almanac, Vol. XXVI, 91st Congress, 2nd Session, 1970, Congressional Quarterly Service, Washington, D. C., p. 676.
9. Ibid., p. 676.
10. Nixon, Richard M., "Message to Congress on Occupational Safety," Congressional Quarter Weekly Report, Vol. XXVII, No. 32, 8 August 1969, p. 1468.
11. Ibid., p. 1496.
12. Public Law 91-596, op. cit., p. 1620.
13. Ibid., p. 1592.
14. Ibid., p. 1609.
15. "Safety and Health Provisions for Federal Employees," Code of Federal Regulations, 29, Labor, Part 1920 to end, 1 July 1976, U. S. Government Printing Office, Washington, D. C., 1976, pp. 293-294.
16. Chief of Naval Operations Instruction 5101.2A, Accident Prevention Manual, 29 June 1976, pp. 1-1 - 1-3.

17. "Environmental Protection and Occupational Safety and Health Division - OP-45," C.E.C. Biweekly Report, Issue No. 2-77, 18 January 1977, p. 2.
18. Percy, Charles H., (Senator), "Prescription for Curing Our Regulation Ills," Nations Business, Vol. 64, No. 12, December 1976, pp. 25-28.
19. Barnako, Frank R., "Enforcing Job Safety: A Managerial Review," Monthly Labor Review, No. 98, March 1975, pp. 36-37.
20. Ibid., p. 37.
21. Ibid., pp. 36-39.
22. "Why Nobody Wants to Listen to OSHA," Business Week, No. 2436, June 14, 1976, p. 68.
23. Wood, Michael, "Enforcing Job Safety: A Union View of OSHA," Monthly Labor Review, No. 98, March 1975, pp. 39-41.
24. "Protecting People On the Job: ABC's of a Controversial Law," U. S. News and World Report, November 24, 1976, p. 69.
25. Orr, Richard, "OSHA Reaps Little Praise from Nation's Farmers," Chicago Tribune, Monday, January 31, 1977, Section 6, p. 8.
26. U. S. Department of Labor, The Employee and OSHA, U. S. Government Printing Office, Washington, D. C., March 1974.
27. Ibid., p. 40.
28. Eccles, Mary, "House Approves Tougher Mine Safety Rules," Congressional Quarterly, Congressional Quarterly, Inc., July 31, 1976, p. 2063.
29. "No 'Chilling Effect' Under OSHA," Monthly Labor Review, January 1976, p. 66.
30. Ibid., p. 66.
31. "Barlow's Inc. versus Usery, U. S. District Court of Idaho, 12/30/76," The United States Law Week, 45 LW 2317.
32. "Protection of Privacy Issue," Monterey Peninsula Herald, Monday, April 18, 1977, p. 4.
33. "Striking at OSHA Through the Courts," Business Week, No. 2436, June 14, 1976, p. 66.

34. "Justice Uphold Right of Job Safety Unit to Set Penalties Without Going to Court," The Wall Street Journal, Vol XCVI, No. 58, Thursday, March 24, 1977, p. 6.
35. Department of Defense Directive 1000.3, Accident Prevention, Safety, and Occupational Health Policy for the Department of Defense, June 15, 1976.
36. Ibid., p. 2.
37. Ibid., p. 4.
38. Secretary of the Navy Instruction 5100.10C, Accident Prevention, Safety, and Occupational Health Policy; implementation of, 21 October 1976.
39. Ibid., p. 2.
40. Chief of Naval Operations Instruction 5100.8C, The Department of the Navy Safety Program; implementation of, 8 September 1975, through change 1 dated 16 October 1975, p. 1.
41. Ibid., p. 3.
42. Ibid., p. 3.
43. Chief of Naval Operations Instruction 5100.17, Policies and Procedures for the Utilization and Development of Standards Relating to Accident Prevention and Occupational Health, 6-September 1972, p. 1.
44. Ibid., enclosure (1), p. 2.
45. Chief of Naval Operations Instruction 5100.14, Department of the Navy Shore Safety Program; promulgation of, 11 August 1970, through change 2 dated 21 August 1975, pp. 1 and 2.
46. Ibid., p. 2.
47. Naval Facilities Engineering Command Instruction 5100.11B, Command Safety Program, 17 February 1977, p.2.
48. Ibid., p. 1.
49. Ibid., enclosure (1), p. 1.
50. Ibid., enclosure (1), p. 7.
51. COMCPAC/COMCBLANT Instruction 5100.1C, Naval Construction Forces Safety Manual, 8 February 1971, p. 2.

52. Code of Federal Regulations, Title 29: Subtitle B - Regulations Relating to Labor: Chapter XVII - Occupational Safety and Health Administration, Department of Labor, Office of the Federal Register National Archives and Records Service, General Services Administration, 1 July 1976, p. 293, part 1960.
53. Ibid., pp. 295-299, Part 1960.
54. Ibid., pp. 299-301, Part 1960.
55. Ibid., pp. 301-306, Part 1960.
56. Ibid., p. 307, Part 1960.
57. Ibid., p. 66, Part 1910.
58. Ibid., pp. 742-744, Part 1915.
59. Ibid., pp. 792-839, Part 1916.
60. Ibid., pp. 839-876, Part 1917.
61. Ibid., pp. 876, 877, Part 1918.
62. Ibid., pp. 12-15, Part 1926.
63. Ibid., p. 307, Part 1960.

BIBLIOGRAPHY

"Barlow's Inc. versus Usery, U. S. District Court of Idaho, 12/30/76," The United States Law Week 45 LW 2317.

Barnako, F. R., "Enforcing Job Safety: A Managerial Review," Monthly Labor Review, No. 98, March 1975.

Chief of Naval Operations Instruction 5100.8C, The Department of the Navy Safety Program; implementation of, 8 September 1975, through change 1 dated 16 October 1975.

Chief of Naval Operations Instruction 5100.14, Department of the Navy Shore Safety Program; promulgation of, 11 August 1970, through change 2 dated 21 August 1975.

Chief of Naval Operations Instruction 5100.17, Policies and Procedures for the Utilization and Development of Standards Relating to Accident Prevention and Occupational Health, 6 September 1972.

Chief of Naval Operations Instruction 5101.2A, Accident Prevention Manual, 29 June 1976.

Code of Federal Regulations, Title 29, General Services Administration, 1 July 1976.

COMCBPAC/COMCBLANT Instruction 5100.1C, Naval Construction Forces Safety Manual, 8 February 1971.

Department of Defense Directive 1000.3, Accident Prevention, Safety, and Occupational Health Policy for the Department of Defense, June 15, 1976.

Eccles, M., "House Approves Tougher Mine Safety Rules," Congressional Quarterly, Congressional Quarterly, Inc., July 31, 1976.

"Environmental Protection and Occupational Safety and Health Division - OP-45," C.E.C. Biweekly Report, Issue No. 2-77, 18 January 1977.

Guralnik, D. B., Editor in Chief, Webster's New World Dictionary, The World Publishing Company, New York, 1973.

Hammer, W., Occupational Safety Management and Engineering, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1976.

"Justice Uphold Right of Job Safety Unit to Set Penalties Without Going to Court," The Wall Street Journal, Vol. XCVI, No. 58, Thursday, March 24, 1977.

Naval Facilities Engineering Command Instruction 5100.11B, Command Safety Program, 17 February 1977.

Nixon, R. M., "Message to Congress on Occupational Safety," Congressional Quarter Weekly Report, Vol. XXVII, No. 32, 8 August 1969.

"No 'Chilling Effect' Under OSHA," Monthly Labor Review, January 1976.

Orr, R., "OSHA Reaps Little Praise from Nation's Farmers," Chicago Tribune, Monday, January 31, 1977.

"Passage of Job Safety Bill Ends Three-Year Dispute," Congressional Quarterly Almanac, Vol. XXVI, 91st Congress, 2nd Session, 1970, Congressional Quarterly Service, Washington, D. C..

Percy, C. H., "Prescription for Curing Our Regulation Ills," Nations Business, Vol. 64, No. 12, December 1976.

"Protecting People On the Job: ABC's of a Controversial Law," U. S. News and World Report, November 24, 1976.

"Protection of Privacy Issue," Monterey Peninsula Herald, Monday, April 18, 1977.

Public Law 91-596, Occupational Safety and Health Act, U. S. Government Printing Office, Washington, D. C., 1970.

"Safety and Health Provisions for Federal Employees," Code of Federal Regulations, 29, Labor, part 1920 to end, 1 July 1976, U. S. Government Printing Office, Washington, D. C..

Secretary of the Navy Instruction 5100.10C, Accident Prevention, Safety, and Occupational Health Policy; implementation of, 21 October 1976.

"Striking at OSHA Through the Courts," Business Week, No. 2436, June 14, 1976.

U. S. Department of Labor, The Employee and OSHA, U. S. Government Printing Office, Washington, D. C., March 1974.

"Why Nobody Wants to Listen to OSHA," Business Week, No. 2436, June 14, 1976.

Wood, M., "Enforcing Job Safety: A Union View of OSHA," Monthly Labor Review, No. 98, March 1975.

INITIAL DISTRIBUTION LIST

	No. Copies
1. Defense Documentation Center Cameron Station Alexandria, Virginia 22314	2
2. Library, Code 0212 Naval Postgraduate School Monterey, California 93940	2
3. Department Chairman, Code 54 Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
4. Commander J. C. Tibbitts, USN (Code 54Ti) Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
5. Commander E. W. Buckner, USN Commander 1st RNCB U. S. Naval and Marine Corps Reserve Center 1201 North 35th Avenue Phoenix, Arizona 85009	1
6. Lieutenant Commander G. E. Koepp, USN COM RNCF Southern Region Representative Building NH-51, Naval Base Charleston, S. C. 29408	1
7. Captain John A. Wright, USN COMCBPAC Makalapa Hawaii FPO San Francisco 96610	1
8. Commander Bruce L. MacCall, USN COMCBLANT Naval Amphibious Base Little Creek Norfolk, Virginia 23521	1
9. Lieutenant Commander J. D. Buttinger, USN (Code 54Bu) Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1

25 OCT 78

25261

Thesis
B8325
c.1

Buckner

Impact of the Occu-
pational Safety and
Health Act on U. S.
Naval construction
forces.

170384

25 OCT 78

25261

Thesis
B8325
c.1

Buckner

Impact of the Occu-
pational Safety and
Health Act on U. S.
Naval construction
forces.

170384

thesB8325

Impact of the Occupational Safety and He



3 2768 002 07890 9

DUDLEY KNOX LIBRARY